

ON A RARE VARIATION IN THE SHELL OF
PTEROCERA LAMBIS, LINN.

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(Plate XIII.)

With the view of ascertaining the nature of the variations which the shell of this common tropical species presented, I recently made a collection, amounting to 67 specimens, both from New Britain and from the Eastern Archipelago of New Guinea, the majority coming from the latter locality.

As might be expected from such a comparatively large series, variations of greater or less intensity were very numerous. I am indebted to Mr. Charles Hedley for his kind assistance in arranging and classifying the collection.

As is known, Bateson (*Materials for the Study of Variation*, London, 1894) has divided variations into two main categories, namely, (1) Meristic variations, comprising numerical variations in members of a series, as the rings of an earthworm or, what concerns us at present, the digitations of *Pterocera*, and (2) Substantive variations, comprising variations in the form and bulk ("substance") of individual parts or regions.

My collection shows numerous substantive variations, the more striking of which relate to the curvature of the digitations, their lengths, the intervals between them, and to the extent to which the apical whorls of the shell are involved in, concealed by or fused with the posterior digitation. The last point is essentially co-terminous with the extent of the ascent of the last whorl upon the spire.

Excluding about 15 of the shells as being young, *i.e.*, with unthickened outer lips, in the majority of the adult shells a greater or less number of the apical whorls are free. In two specimens only, that is to say in about 1 per cent. of the

individuals, was the apex of the spire entirely fused with and, in one of them, deeply imbedded in the base of the posterior digitation. In the other shell the apex was not imbedded in the posterior digitation, but was applied very closely against it.

Pterocera also varies very much as to the stage of growth at which the deposition of callus on the outer lip of the shell takes place. As is known, this deposition of callus eventually leads to the complete closing up of the canals which, in the younger shells, passed from the mouth of the shell into the tubular digitations. This fact is analogous to what has been observed in some other of the lower animals, namely, that they can become sexually mature at very different sizes, and then cease to grow in linear dimensions.

In the adult animal of *P. lambis*, therefore, the border of the mantle is not digitated.

We now pass on to the description of the rare variation referred to in the title of this paper.

Out of the whole collection only three specimens exhibited a variation in regard to the number of the labial digitations. In all cases the intercalated digitation occurred between the second and third normal digitations. Although small, its presence offered a striking contrast to the other shells. Of the three specimens exhibiting this variation, two (Figs. 1 & 2) came from New Britain. In both cases the rudimentary digitation was backed up by a definite ridge on the outer surface of the shell as is the case with normal digitations.

The third specimen, from New Guinea (Fig. 3), presented a rather puzzling aspect. The intercalated digitation had a double character, and was not backed up by a prominent ridge on the outer surface. It appeared to have had a distinctly later origin than in the other two cases. Two furrows proceeded from it to the mouth of the shell, one being independent and the other produced by a bifurcation of the furrow belonging to the second normal digitation.

The constancy in the position of the above described rudimentary intercalated digitation in *P. lambis* should be emphasized.

It can be identified, I think, with absolute certainty, with one of the digitations of *P. millepeda*, Linn., namely, the fourth. I obtained four specimens of *P. millepeda*, which has nine labial digitations, from New Guinea. In two of these the fourth digitation was markedly smaller than any of the others, while agreeing in position with that above described in *P. lambis*. In fact, in *P. millepeda* the intercalated digitations are obviously the second and fourth, and probably the seventh.

It may also be remembered as indicating the significance of the appearance, by variation, of an extra digitation in *P. lambis*, that in *P. elongata*, Swainson, there are eight labial digitations, in *P. violacea*, Swainson, ten, and in *P. chiragra*, Linn., five.



EXPLANATION OF THE FIGURES.

Fig. 1.—The canals leading into the tubular digitations are still open, the deposition of callus having only commenced.

Figs. 2 and 3.—The canals are closed up by callus, their previous existence being indicated by shallow furrows.

i.d., intercalated digitation.

The shell represented in Fig. 1 was the same in which the apex of the spire was imbedded in the posterior digitation as mentioned in the text.